CLAIMS

1. A method for amplifying a nucleic acid, the method comprising the steps of:

(A) preparing a reaction mixture selected from:

(a) a nucleic acid as a template, a deoxyribonucleotide triphosphate, a DNA polymerase having a strand displacement activity, at least two chimeric oligonucleotide primers, at least one ladder-forming oligonucleotide primer and an RNase H; or

(b) a nucleic acid as a template, a deoxyribonucleotide triphosphate, a DNA polymerase having a strand displacement activity, at least two chimeric oligonucleotide primers and an RNase H, wherein one of the chimeric oligonucleotide primers serves as a ladder-forming oligonucleotide primer,

wherein each chimeric oligonucleotide primer contains a ribonucleotide as well as at least one selected from the group consisting of a deoxyribonucleotide and a nucleotide analog, and the ribonucleotide is positioned at the 3' terminus or on the 3'-terminal side of the primer,

wherein the chimeric oligonucleotide primers comprise at least a first chimeric oligonucleotide primer which is complementary to a nucleotide sequence of the nucleic acid as a template and a second chimeric

oligonucleotide primer which is homologous to a nucleotide sequence of the nucleic acid as a template, and

wherein the ladder-forming oligonucleotide primer has a sequence complementary to a region of the nucleic acid as a template that is complementary to the first chimeric oligonucleotide primer and/or a nucleotide sequence 3' to said region, and has, on its 5' side, a sequence complementary to: a nucleotide sequence on the 5' side of the second chimeric oligonucleotide primer which is homologous to the nucleic acid as a template; a nucleotide sequence of the nucleic acid as a template corresponding to a region 5' to the 5' terminus of the portion homologous to the second chimeric oligonucleotide primer; or both; and

(B) incubating the reaction mixture for a sufficient time to generate a ladder-like amplification product under constant-temperature conditions under which specific annealing of the primer to the nucleic acid as a template, a reaction of synthesizing an extended strand and a strand displacement reaction by the DNA polymerase, as well as a reaction of cleaving an extended strand by the RNase H take place.

2. The method according to claim 1, wherein the nucleic acid as a template is an RNA, and the nucleic acid is treated beforehand with a deoxyribonucleotide triphosphate, a DNA polymerase having a reverse

transcription activity and at least one ladder-forming oligonucleotide primer to convert the nucleic acid into a reverse transcription product.

3. The method according to claim 1, wherein the reaction mixture in step (A) further contains a DNA polymerase having a reverse transcription activity.

4. The method according to claim 2 or 3, wherein the nucleic acid as a template is an mRNA.

5. The method according to claim 2 or 3, a single DNA polymerase having a reverse transcription activity and a strand displacement activity serves as the DNA polymerase having a reverse transcription activity and the DNA polymerase having a strand displacement activity.

6. A composition for the method for amplifying a nucleic acid defined by claim 1, which contains at least one chimeric oligonucleotide primer and/or at least one ladder-forming oligonucleotide primer.

7. A kit for the method for amplifying a nucleic acid defined by claim 1, which contains at least one chimeric oligonucleotide primer and/or at least one ladder-forming oligonucleotide primer.

8. A method for detecting a target nucleic acid, the method comprising the steps of:

(a) amplifying a target nucleic acid according to the method for amplifying a nucleic acid defined by claim

1; and

(b) detecting the target nucleic acid amplified in the above step.

9. An oligonucleotide primer used for the method for amplifying a nucleic acid defined by claim 1, which has, on its 5' side, a sequence complementary to: a nucleotide sequence on the 5' side of a primer that is homologous to a nucleic acid as a template; a nucleotide sequence of the nucleic acid as a template corresponding to a region 5' to the 5' terminus of a portion homologous to the second chimeric oligonucleotide primer; or both.